US Army Corps of Engineers®
Engineer Research and Development Center

Developing Capabilities for *Map Server*

Description

Combat Terrain Information Systems (CTIS) is the Project Management Office responsible for the acquisition of tactical terrain analysis capabilities for the U.S. Army. Project Director, CTIS develops and fields *Map Server* capabilities that support dissemination of a common geospatial data set to provide a Common Topographic Operating Environment for the Army Battle Command Systems community and other Army geospatial data users.

The *Map Server* has three primary sources of data: the National Geospatial Intelligence Agency (NGA), commercial data providers, and data derived by Army Terrain Teams. NGA provides digital elevation, feature, and image data. Commercial data consists mainly of vectors, high-resolution imagery, and video formats. Terrain Teams provide both digital data and Tactical Decision Aids (TDAs) generated on the Digital Topographic Support System (DTSS). *Map Server* provides a web-based, user-friendly interface that allows clients to pull these separate geospatial data and product types down to their systems. *Map Server* then uses state-of-the-art commercial software packages to store, manage, and exchange this data between itself and systems using the *Commercial Joint Mapping Toolkit (CJMTK)*.

Capabilities

The *Map Server* is a component of the DTSS-Light (DTSS-L) and DTSS-Base (DTSS-B) systems, which are designed to meet the geospatial data needs at various Army echelons. The *Map Server*:

1. Provides geospatial information (electronic map background images, digital elevation data, feature data, imagery, and geospatial analysis) to Army systems
2. Provides the capability to receive, validate, store, and organize geospatial data, including both NGA data and data in common commercial formats
3. Provides, maintains, and manages the Geospatial data from Theater through Brigade levels
4. Provides database management for all geospatial data used within the Army Battle Command Systems (ABCS) community
5. Maintains terrain data integrity through the replication of all geospatial data held at all echelons.

Supporting Technology

The *Map Server* uses commercial software packages including the Environmental Systems Research Institute, Inc. (ESRI) *ArcIMS* Internet server and *ArcSDE* database engine, and Informix's *Relational Database Management System (RDBMS)* to manage data. *ArcIMS* and *ArcSDE* are also components of *CJMTK*, an NGA program to enhance geospatial data interoperability across Department of Defense systems, built around ESRI components.

Map Server capabilities are provided with the DTSS-B (garrison-based) and DTSS-L (HMMWV-based) configurations. The DTSS-B was designed to augment NGA capabilities at the Theater level by providing quick response, special purpose mapping, terrain analysis, and database generation. The DTSS-L is a highly mobile system that supports a full range of military operations, and peacetime stability and support operations as well.

DTSS-L (HMMWV Shelter)

DTSS-B (Garrison Only)

Benefits

Development of new capabilities for *Map Server* helps to meet the changing needs of the Net-centric battlefield, on which the commander must have the ability to rapidly obtain geospatial data and analyses. The *Map Server* is an integral part of a widely distributed capability that significantly improved upon the slow, labor-intensive terrain analysis, topographic, and reproduction support formerly required of Army Engineer Terrain Teams.

Success Stories

Approximately 90 *Map Servers* have been deployed worldwide, where they provide information to Army commanders and battle command systems. Periodic software upgrades improve *Map Server*'s capabilities and increase its value to the Army as a tool that provides geospatial data to DTSS systems to optimize the interface to Army standard models that generate decision aids and a variety of intervisibility and mobility products.

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